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ABSTRACT

Research indicates that the relationship between class size and instructional effectiveness depends on a multitude of related variables, such as age level of students, subject matter taught, and instructional methods used. Recent statistical syntheses of this research reveal that the instructional benefits of smaller classes are most significant for classes with under 20 students; between 25 and 40 students, class size has little overall effect on educational quality. (TE)

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CLASS SIZE

How large should classes be? Research indicates that the relationship between class size and instructional effectiveness depends on a multitude of related variables, such as age level of students, subject matter taught, and instructional methods used. Recent statistical syntheses of this research reveal that the instructional benefits of smaller classes are most significant for classes under 20 students; between 25 and 40 students, class size has little overall effect on educational quality.

Why is class size a controversial policy issue?

Class size is a policy issue that has perennially divided teachers and policymakers, especially during contract negotiations. Common sense tells us, as teachers argue, that smaller classes facilitate increased student-teacher interaction, allow for more thorough student evaluation, and provide (potentially) for greater flexibility in teaching strategies. They also reduce teachers' workload per class and therefore permit teachers to allocate more time to class preparation and less to grading papers or tests. Finally, smaller classes tend to minimize student discipline problems, since teachers can more easily keep all students under their watchful eye; this in turn gives teachers more time for instruction, while reducing the emotional strain of teaching.

Common sense also tells us, however, that smaller classes are considerably more expensive for a school district to maintain, since they require a lower student-teacher ratio (hence an expanded teaching staff) and more classroom space per student population (hence expanded or remodeled facilities). Are the benefits of smaller classes worth the cost? This question has generated acrimonious debate between organizations representing teachers and administrators respectively, but the issues involved in the debate are too complex and various to yield a simple judgment for or against reducing class size.

Is class size related to student achievement?

Until recently, research offered little help in resolving the class size controversy. In his 1978 review of research on the topic, Sidney Thompson maintained that research findings were necessarily inconclusive, because of the intrinsic relativity in the definition of "small" or "large," the inherent imprecision of outcome measures, the subjectivity of process measures, and the plethora of uncontrolled variables in even the best research designs. Thompson concluded that the relationship of class size to educational effectiveness involves too many complex issues to be reduced to a single testable hypothesis.

From 1978 to 1980, however, three controversial "meta-analyses" of class size research were published by Gene V. Glass and Mary Lee Smith; these analyses have since come to dominate discussion of the issue. Smith and Glass employed sophisticated statistical methods to correlate the findings of 80 studies that yielded over 700 comparisons of smaller and larger classes with respect to student achievement, classroom processes, and teacher and student attitudes. Their conclusion is unequivocal: a positive correlation can be drawn between smaller classes and all these variables.

Smith and Glass came under attack almost immediately by the Educational Research Service, which published an extensive critique of their methods and findings. ERS's principal objections were that statistical "meta-analysis" precludes identification of meaningful clues contained in the research, that conclusions are overgeneralized from a few "well designed" studies that received disproportionate emphasis, and that the findings as a whole do not justify general class size reductions.

The latter objection is based on graphs from the Smith and Glass studies themselves, showing that improvement in student achievement and other educational variables does not become dramatic or significant until class size is reduced below 20 pupils. Such a goal is simply not financially feasible in most school districts without drastic remodeling of facilities and expansion of personnel.

Since ERS published its critique, others have arrayed themselves for or against Smith and Glass, whose studies have become a point of reference in nearly everything written on the subject.

In what settings are smaller classes most beneficial?

In general, research findings show that smaller classes are likely to be most beneficial for younger (elementary school) students, for economically or educationally disadvantaged students, and for exceptional students at both ends of the scale--gifted and disabled.

Research has shown that smaller classes are most beneficial in reading and mathematics at the elementary level, while at the secondary level class size tends to make little difference for student achievement in most subject areas. The areas where smaller classes are most likely to be advantageous at the secondary level are those that emphasize acquisition of skills rather than mastery of content--areas such as industrial arts, fine arts, music, and writing.

A number of studies, such as one by Stan Shapson and colleagues, have demonstrated that teachers do not necessarily modify their teaching

strategies when placed in smaller classes. Shapson found that class size makes a large difference to teachers in terms of their attitudes and expectations, but little or no difference to students or to instructional methods used. He concluded that teachers need to be trained in instructional strategies most appropriate for different size classes.

What are less expensive alternatives to an across-the-board reduction in class size?

As Michael Berger has observed, the large volume of class size research has yielded few empirically verifiable generalizations to guide formulation and implementation of educational policy. Even if the Smith and Glass analyses are valid, significant reductions in class size are fiscally impossible in most school districts, while small reductions within the 25-40 student range do not produce sufficient achievement gains to make them worth the cost.

The focus on numbers tends to obscure a more basic question that includes but goes beyond class size: Assuming a limited amount of resources, how can instructional arrangements be best adapted to the particular needs of each class? Berger lists four general strategies available to administrators for modifying instructional arrangements: (1) modify distribution of instructional staff; (2) modify instructional methods; (3) modify distribution of students; and (4) modify exacerbating factors.

Because of the multiple variables involved, class size decisions are best made at the building level, on a case-by-case basis, with teachers participating in the decision-making process, rather than at the district level as a blanket policy. Intelligent decisions about class size also presuppose the discretion to permit small classes in contexts where they are most beneficial, as noted in the preceding section.

Furthermore, administrators may choose among numerous less expensive alternatives to mandated smaller classes. These include teacher aides (who can be useful in a variety of disciplines such as math, science, and language arts), parent and community volunteers, a staggered schedule, special laboratories or centers, team-teaching, extended day programs, cooperative learning, and computers or other individualized instructional aids.

Finally, it is important to recognize that agitation by teacher unions for smaller classes is frequently a manifestation of teachers' concern, not for the number of students in one class, but rather for their overall workload--the total number of students an instructor faces. Therefore, any measures that can reduce teachers' workload or provide methods for alleviating the burden of that workload are negotiable substitutes for an overall reduction in class size.

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